

Grant R. Clayton\*  
Alan J. Howarth, Ph.D.\*  
Karl R. Cannon\*  
Clifford B. Vaterlaus\*  
Terrence J. Edwards  
\*Registered Patent Attorneys

Intellectual Property Law  
Patents • Trademarks  
Copyrights • Licensing  
Litigation • Trade Secrets  
Computer Law • Biotechnology  
Unfair Competition • Enforcement

**Clayton, Howarth & Cannon**  
**CHC**

*Attorneys At Law • A Professional Corporation*

**Mailing Address**  
P.O. Box 1909  
Sandy, Utah 84091

**Physical Address**  
1225 East Fort Union Boulevard  
Suite 300  
Midvale, Utah 84047

Phone: (801) 255-5335  
Facsimile: (801) 255-5338  
Home Page: [www.chcpat.com](http://www.chcpat.com)  
General E-mail: [patlaw@chcpat.com](mailto:patlaw@chcpat.com)

March 8, 2002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**TRANSMITTAL FOR INFORMATION DISCLOSURE STATEMENT:**  
**BEFORE PAYMENT OF ISSUE FEE**

Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Transmitted herewith for filing and pursuant to 37 C.F.R. § 1.97 is an Information Disclosure Statement.

Enclosed also are the following designated documents, as required under 37 C.F.R. §§ 1.97 and 1.98:

- ☒ Form PTO-1449 list of fourteen references submitted for consideration.
- ☒ Legible copies of the listed references or their relevant portions.
- ☐ All English translations of each nonenglish reference, if any, within the possession, custody, control or availability of anyone designated in 37 C.F.R. § 1.56(c) (see 37 C.F.R. § 1.98(c)).

The following are included within the Information Disclosure Statement if applicable and as required under 37 C.F.R. § 1.98:

- ☐ Concise explanation of relevance of each reference not in English and unaccompanied by an English translation.
- ☐ Statement that certain listed references not enclosed are substantially cumulative of an enclosed reference.

- Statement that certain listed references not enclosed were previously cited by or submitted to the Office in the identified prior application which is relied upon for an earlier filing date under 35 U.S.C. § 120.

In order to secure consideration of the items designated above, one or more of the following, if required, is also enclosed:

- Promptness Certification.
- Check No. \*\*\*[\_\_\_\_\_]\*\*\* in the amount of \*\*\*[\$ (amount in § 1.17(p))\*\*\* constituting the submission fee set forth in 37 C.F.R. § 1.17(p).
- Petition for Consideration and Check No. \*\*\*[\_\_\_\_\_]\*\*\* in the amount of \*\*\*[\$(amount in § 1.17(i)(1))\*\*\* constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).
- In the event that 37 C.F.R. § 1.97(c) applies and the Examiner is not satisfied that the Promptness Certification meets the requirements of 37 C.F.R. § 1.97(e), or in any other event remediable by a fee, please credit any over payment or charge any additional fees to Deposit Account No. 50-0836 of the undersigned.

Dated this 8th day of March, 2002.

Respectfully submitted,

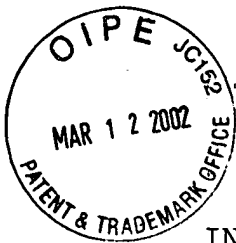


Alan J. Howarth, Ph.D.  
Attorney Registration No. 36,553  
Customer No. 020450

Clayton, Howarth & Cannon, P.C.  
P.O. Box 1909  
Sandy, UT 84091  
Telephone (801) 255-5335  
Facsimile (801) 255-5338

AJH/hf

Enclosures: Supplemental Information Disclosure Statement  
Form PTO 1449 with attachments  
Postcard



Attorney Docket No. T9479.B

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT: RAYMOND F. GESTELAND, )  
et al. )  
TITLE: FINDING ACTIVE )  
ANTISENSE )  
OLIGONUCLEOTIDES )  
USING ARTIFICIAL )  
NEURAL NETWORKS ) INFORMATION DISCLOSURE  
STATEMENT UNDER 37 C.F.R.  
SERIAL NO.: 10/050,888 ) § 1.97  
FILED: January 14, 2002 )  
EXAMINER: \_\_\_\_\_ )  
ART UNIT: \_\_\_\_\_ )

Commissioner for Patents  
Washington, D.C. 20231

Sir:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449, which contains a list of patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). Applicants respectfully invoke the Patent Office's obligation under 37 C.F.R. § 1.97 to consider these references and make them of record in the above-captioned application. While no representation is made that

Certificate of Deposit Under 37 C.F.R. § 1.8

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to Commissioner for Patents, Washington, D.C. 20231, on the 8th day of March, 2002.

*Alan J. Howarth*

Alan J. Howarth, Ph.D.  
Attorney Registration No. 36,553

any of these references may be "prior art" within the meaning of that term under 35 U.S.C. §§ 102 or 103, the enclosed list of references is disclosed so as to fully comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the references listed, together with any other references that may have been previously cited by or submitted to the Office, are the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art that is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

In accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each listed reference (or relevant portion thereof) that was not previously submitted to, or cited by, the Patent Office is also enclosed.

Please charge any additional fees or credit any overpayment to  
Deposit Account No. 50-0836.

DATED this 8th day of March, 2002.

Respectfully submitted,



Alan J. Howarth, Ph.D.  
Attorney Registration No. 36,553

CLAYTON, HOWARTH & CANNON, P.C.  
P.O. Box 1909  
Sandy, UT 84091  
Telephone: (801) 255-5335  
Facsimile: (801) 255-5338

S:\CHC Files\T 9--\T94--\T9479\B\IDS 02122002.wpd

PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. T9479.B		SERIAL NO. 10/050,888	
LIST OF PRIOR ART CITED BY APPLICANT				APPLICANT Raymond F. Gesteland, et al.			
				FILING DATE January 14, 2002		GROUP	
U.S. PATENT DOCUMENTS - None							
FOREIGN PATENT DOCUMENTS - None							
OTHER PRIOR ART (Including Author, Title, Volume and/or Name of Publication, Relevant Pages and Date [as available])							
	AR		O.V. Matveeva, et al., Identification of sequence motifs in oligonucleotides whose presense is correlated with antisense activity; Nucleic Acids Research, 2000, Vol. 28, No. 15, pgs. 2862-2865. ✓				
	AS		Volker Patzel, et al., A theoretical approach to select effective antisense oligodeoxyribonucleotides at high statistical probability; Nucleic Acids Research, 1999, Vol. 27, No. 22, pgs. 4328-4334. ✓				
	AT		Siew Peng Ho, et al., Potent antisense oligonucleotides to the human multidrug resistance-1 mRNA are rationally selected by mapping RNA-accessible sites with oligonucleotide libraries; Nucleic Acids Research, 1996, Vol. 24, No. 10, pgs. 1901-1907. ✓				
	AU		Olga Matveeva, et al., Prediction of antisense oligonucleotide efficacy by in vitro methods; Nature Biotechnology, Dec. 1998, Vol. 16, pgs. 1374-1375. ✓				
	AV		C.A. Stein, Keeping the biotechnology of antisense in context; Nature Biotechnology, March 1999, Vol. 17, pg. 209. ✓				
	AW		Ming-Yi Chiang, et al., Antisense Oligonucleotides Inhibit Intercellular Adhesion Molecule 1 Expression by Two Distinct Mechanisms; The Journal of Biological Chemistry, Sept. 25, 1991, Vol. 266, No. 27, pgs. 18162-18171. ✓				
	AX		Michael C. Giddings, et al., ODNBase—a web database for antisense oligonucleotide effectiveness studies; Bioinformatics Applications Note, 2000, Vol. 16, No. 9, pgs. 843-844. ✓				
	AY		Naoki Sugimoto, et al., Thermodynamic Parameters To Predict Stability of RNA/DNA Hybrid Duplexes; Biochemistry, 1995, Vol. 34, pgs. 11211-11216. ✓				
	AZ		Robert A. Stull, et al., Predicting antisense oligonucleotide inhibitory efficacy: a computational approach using histograms and thermodynamic indices; Nucleic Acids Research, 1992, Vol. 20, No. 13, pgs. 3501-3508. ✓				
	BA		Brett P. Monia, et al., Antitumor activity of a phosphorothioate antisense oligodeoxynucleotide targeted against C-ras kinase; Nature Medicine, June 1996, Vol. 2, No. 6, pgs. 668-675. ✓				
	BB		Alistair J. Stewart, et al., Reduction of Expression of the Multidrug Resistance Protein (MRP) in Human Tumor Cells by Antisense Phosphorothioate Oligonucleotides; Biochemical Pharmacology, 1996, Vol. 51, pgs. 461-469. ✓				
	BC		Nicholas M. Dean, et al., Inhibition of Protein Kinase C- $\alpha$ Expression in Human A549 Cells by Antisense Oligonucleotides Inhibits Induction of Intercellular Adhesion Molecule 1 (ICAM-1) mRNA by Phorbol Esters; The Journal of Biological Chemistry, June 10, 1994, Vol. 269, No. 23, pgs. 16416-16424. ✓				
	BD		Stanislaw M. Stepkowski, et al., Blocking of Heart Allograft Rejection by Intercellular Adhesion Molecule-1 Antisense Oligonucleotides Alone or in Combination with Other Immunosuppressive Modalities; The Journal of Immunology, 1994, Vol. 153, pgs. 5336-5346. ✓				
	BE		Jennifer L. Duff, et al., Mitogen-activated Protein (MAP) Kinase Is Regulated by the MAP Kinase Phosphatase (MKP-1) in Vascular Smooth Muscle Cells; The Journal of Biological Chemistry, March 31, 1995, Vol. 270, No. 13, pgs. 7161-7166. ✓				
EXAMINER				DATE CONSIDERED			
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>							